PREBOOT EXECUTION ENVIRONMENT EXTENSION IDENTIFIER

FIELD OF THE INVENTION

The invention relates generally to booting a computer, and more specifically to

5   a selecting a PXE boot extension to download from a PXE boot extension server via

an identifier.

BACKGROUND OF THE INVENTION

Computers traditionally use built-in code known as a BIOS (Basic

10   Input/Output System) to perform initial boot functions and to control certain attached

devices before loading an operating system or other software. This enables a computer

to receive input from a keyboard and to output data to a display, and further provides

the computer with control of devices such as serial communications ports and disk

drives.

15   When booting, a personal computer typically either executes the BIOS from

ROM or flash memory, or loads the BIOS into RAM and executes the BIOS code from

RAM to perform initial testing, configuration, and to initialize loading an operating

system. Although operating systems are traditionally loaded from hard disks or

diskette drives, BIOS extensions such as the PXE or Preboot eXecution Environment

20   provide a computer system the ability to boot an operating system from an additional

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source. This technology is often used to perform functions such as booting the

computer over the network connection via a network bootstrap program, or to perform

other desired functions. It can also be used to load and execute PXE boot extensions

or programs from other networked computers before the computer boots.

5   In manufacturing a computer system, it is desired that a computer be able to

boot over a network using a technology such as the PXE to load boot extensions so

that the computer can be configured, and to perform tasks such as loading an operating

system onto the hard disk via a network connection. Doing this in an environment

with multiple types of computer systems being built and configured traditionally

10   requires that a user select the proper PXE boot extension image from a PXE boot

extension server while booting a new system to ensure that the PXE boot extension

specific to that computer's desired configuration is loaded from the PXE boot

extension server.

It is desirable to eliminate the need for a user to manually perform the function

15   of selecting a PXE boot extension based on the desired configuration of the booting

computer.

SUMMARY OF THE INVENTION

The present invention provides in one embodiment a system and method of loading a PXE boot extension in a computer. A BIOS identifier corresponding to a desired PXE boot extension is stored on the computer, and is provided to a PXE boot extension server. The PXE boot extension server determines from the BIOS identifier which of a plurality of PXE boot extensions to provide to the computer, and provides the determined PXE boot extension to the computer.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows a computer system configuration consistent with an embodiment of the present invention.

Figure 2 shows a flowchart of a method of practicing an embodiment of the present invention.

DETAILED DESCRIPTION

In the following detailed description of sample embodiments of the invention, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration specific sample embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that

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other embodiments may be utilized and that logical, mechanical, electrical, and other

changes may be made without departing from the spirit or scope of the present

invention. The following detailed description is, therefore, not to be taken in a limiting

sense, and the scope of the invention is defined only by the appended claims.

5   The present invention provides in one embodiment a system and method of

loading a PXE boot extension in a computer. A BIOS identifier corresponding to a

desired PXE boot extension is stored on the computer, and is provided to a PXE boot

extension server. The PXE boot extension server determines from the BIOS identifier

which of a plurality of PXE boot extensions to provide to the computer, and provides

10   the determined PXE boot extension to the computer.

Figure 1 shows a computer system configuration consistent with an

embodiment of the present invention. A computerized system 101 contains a BIOS, or

Basic Input/Output System 102, that comprises built-in software that enables the

computer to perform basic functions without booting an operating system or loading

15   software from a disk drive. A computer's BIOS typically includes code that enables

use fo the keyboard, display, disk drives, and communications ports.

In this example embodiment of the invention, the BIOS also includes a BIOS

identifier 103 that identifies a particular preboot execution environment extension

(PXE boot extension) that is desired. The desired extension is requested by a BIOS

20   code element 104, and upon retrieval will be executed in the preboot execution

environment (PXE) 105.

A network interface card (NIC) connects the computerized system 101 to a

PXE boot extension server 107 storing a number of PXE boot extensions 108 via its

network card 109. When the computer system 101 requests a specific PXE boot

5   extension from PXE boot server 107 by sending its BIOS identifier 103 along with a

request over the network connection, the PXE boot server's server module 110

receives the request and provides the PXE boot extension corresponding to the BIOS

identifier 105 to the requesting computer 101.

In some embodiments of the invention, the BIOS identifier 103 is a part of the

10   BIOS loaded onto the computer during manufacture or configuration. In other

embodiments, it comprises a CMOS setting that is alterable by entering a CMOS

configuration setting screen on the computerized system 101. The BIOS identifier

serves to identify the desired PXE boot extension, such as by uniquely identifying the

type or intended use of a computer during the manufacturing process.

15   The PXE boot extension provided by the PXE boot extension server 107 are in

some embodiments used in the manufacturing process to configure the computer

system. For example, a PXE boot extension that loads an operating system image

from another networked computer onto the computerized system 101's hard disk drive

may be employed as a method of loading an operating system image that is

20   preconfigured for computer 101's specific desired hardware and software

specifications. The BIOS identifier may therefore cause loading PXE boot extensions

that load different operating systems, different software configurations, and different

driver configurations to various computer systems during their manufacture.

Figure 2 is a flowchart of a method of practicing another example embodiment

5   of the present invention.

Figure 2 shows a flowchart of a method of practicing an embodiment of the

present invention. At 201, a BIOS identifier is stored in a computer system. The

BIOS identifier is in various embodiments provided as a part of the BIOS, is a user-

configurable CMOS setting, or is stored in the computer in another way. The BIOS

10   identifier is provided to a PXE boot extension server at 202, which receives the BIOS

identifier and determines which PXE boot extension corresponds to the BIOS

identifier at 203. The PXE boot extension server sends the proper PXE boot extension

to the requesting computer system at 204, and the requesting computer receives and

loads the PXE boot extension. At 205, the requesting computer executes the received

15   PXE boot extension in its preboot execution environment (PXE).

The PXE boot extension may in various embodiments of the invention be

adapted to perform various functions, such as booting from another networked

computer, loading a disk image from another networked computer to the requesting

computer system, or other such functions. It is anticipated that a variety of such

20   functions that are performed in the manufacturing process can be adapted for

automated selection, loading, and execution in a PXE boot extension that is
automatically identified by a BIOS identifier as is described in these example
embodiments, all of which are within the scope of the present invention.

Although specific embodiments have been illustrated and described herein, it
5   will be appreciated by those of ordinary skill in the art that any arrangement which is
calculated to achieve the same purpose may be substituted for the specific
embodiments shown. This application is intended to cover any adaptations or
variations of the invention. It is intended that this invention be limited only by the
claims, and the full scope of equivalents thereof.